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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,901	02/14/2002	Jyi-Chang Tsai	HSIE3024/EM	4767

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EXAMINER

HANEY, MATTHEW J

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,901

Applicant(s)

TSAI ET AL.

Examiner

Matthew Haney

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 4-10, 13 and 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the invention described in Claims 1-3 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Allowable Subject Matter

2. Claims 4-10 and 13-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 2002/0122482) in view of Reed (US 6,212,232).

As for Claims 1 and 3, Kim teaches of establishing a dynamic rate table (i.e. a lookup table) under the off-line condition (Page 3, Paragraph [0028]); estimating the target coding bit count of the current frame (Page 3, Paragraph [0031]); calculating and recording SAD value and motion vector of every MB (Page 2, Paragraph [0013 and 0020], along with Fig.1 which shows an arrow (SAD) pointing to the motion estimation.); categorizing the MBs into uncompensable and compensable MBs, and separating into inter and intra coding (Page 2, Column 2, Paragraph [0022]); calculating and recoding the numbers into parameters N_{intra} and N_{inter} (Note: the last sentence of Page 2, Column 2, Paragraph [0022] lends itself to the fact that these values must be calculated and stored in order for them to be used later for rate control); estimating the number of bits allocated to the kth uncompensable MB based on SAD (Page 3, Paragraph [0029]); searching the dynamic rate table by using b and SAD of the current MB to obtain an optimal quantization parameter (Note: index = SAD and either bit count or quantization can be used to find the other, Page 3, Paragraph [0029]); using the resulting QP to quantize and encode the current MB, and then using actual coding bit count to update the dynamic rate table (Note: the lookup table will continually be updated until the bit budget is met, Page 3, Paragraph [0029]). Kim does not teach of adjusting the QP such that the difference value between QP_k and QP_{k-1} is not greater than 2, however, Reed does (Note: Reed teaches that QP should be changed by only +/- 1 unless underflow is close and then a max of +/- 2 can be stepped, Column 11, Lines 5-26). Since Reed gives a general teaching about the art described above, it would have been obvious to

one of ordinary skill in the art at the time of the invention to take this general teaching and apply it to the invention described herein.

As for Claim 2, Kim teaches of QP represents quantization parameter with $QP=1-31$ (Page 2, Paragraph [0022]). Although Kim does not explicitly teach of a 2-dimensional matrix, it would have been obvious to one of ordinary skill in the art to take a lookup table and convert it into a (2×31) matrix in order to make the value lookup more computationally responsive.

As for Claims 11 and 12, Kim teaches of optimal quantization parameter QP is obtained by minimizing the difference between b and $b[SAD][QP]$ (Note: difference between the bit budget (target bit rate) and the bit count for the lookup table is minimized, Page 3, Paragraph [0029]); actual coding bit count to update the dynamic rate table (Note: the lookup table will continually be updated until the bit budget is met and this is done for every MB, Page 3, Paragraph [0029]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Haney whose telephone number is 703-305-4915. The examiner can normally be reached on M-Th (7-4:30), Every Other Friday Off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2613

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew Haney
Examiner
Art Unit 2613

mjh


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
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